

## Joseph C. von Fischer

### Curriculum Vitae

May 2016

#### **Address**

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#### **Research Interests**

Greenhouse gases, ecosystem ecology, microbial ecology, terrestrial biogeochemistry, anthropogenic methane sources, natural gas, climate change, plant-soil-microbe interactions, stable isotopes, paleoclimate, grasslands, wetlands, Arctic tundra.

#### **Current Appointments**

Associate Chair, Department of Biology, Colorado State University. August 2014 – present.

Associate Professor with tenure, Department of Biology, Colorado State University,  
August 2012 – present.

Advising Faculty, Graduate Degree Program in Ecology, Colorado State University.  
2003 – present.

Affiliate Scientist, Natural Resource Ecology Laboratory, Colorado State University,  
2009 – Present.

#### **Education**

Postdoctoral Fellow, Department of Geosciences, Princeton University, Princeton, NJ.  
2001 – 2003. Advisor: Michael Bender.

Ph.D., Ecology and Evolutionary Biology, Cornell University, Ithaca, NY, 2002. "Gross Methane Transformations and Methanogenic Microsites along Natural Soil Moisture Gradients."  
Participant in the graduate program: Biogeochemistry and Environmental Change.  
Advisor: Lars Hedin.

B.A., Biology, Augustana College, Sioux Falls, SD. 1992.

#### **Professional Experience**

Merkator Fellow, Friedrich Schiller University, Jena, Germany. Host Kirsten Küssel. November  
2013 – July 2014.

Visiting Scientist in Residence (sabbatical), Max Planck Institute for Biogeochemistry, Jena,  
Germany. Host Susan Trumbore. August 2013 – July 2014.

Assistant Professor, Department of Biology, Colorado State University,  
August 2007 – July 2012.

Research Scientist I, Natural Resource Ecology Laboratory, Colorado State University.  
2003 – 2009.

Special Assistant Professor, non-tenure track, Department of Biology, Colorado State  
University, Fort Collins, CO. August 2003 – August 2007.

Visiting Researcher, Santa Fe Institute, Santa Fe, NM. May – July 2003.

Research Technician Michigan State University at the W.K. Kellogg Biological Station, Hickory Corners, MI. With Lars Hedin. 1992 – 1993.

**Publications** (\*graduate student, †undergraduate student)

- von Fischer J.C., D. Cooley, A. Gaylord<sup>a</sup>, C.J. Griebenow, S.P. Hamburg, J. Salo, R. Schumacher, D. Theobald and J. Ham. (submitted) “Rapid Identification of location and magnitude of urban natural gas pipeline leaks” at *Environmental Science and Technology*.
- Evans\*, S.E., P.E. Brewer\*, J.G. Ernakovich\*, J.M. Steinweg\* and J.C. von Fischer (in revision) “Anoxic microsites in upland ecosystems: a review of evidence and implications for nutrient dynamics, trace gas flux, carbon storage, and biodiversity. *Ecosystems*.
- Judd, C, A. Koyama, P.E. Brewer, M.P. Simmons, and J.C. von Fischer (2016) “Co-variation in methanotroph community composition and activity in three temperate grassland soils.” *Soil Biology and Biochemistry*. doi:10.1016/j.soilbio.2015.12.014
- Jochum\*, T., von Fischer, J.C., Trumbore, S., Popp, J., Frosch, T. (2015) "Multi-gas leakage correction in static environmental chambers using sulfur hexafluoride and Raman spectroscopy" *Analytical Chemistry* 87 (21):11137–11142. doi: 10.1021/acs.analchem.5b03312
- Nowak, M.E., S.E. Trumbore, J.C. von Fischer, (2015) “Autotrophic fixation of geogenic CO<sub>2</sub> by microorganisms contributes to soil organic matter formation and alters isotope signatures in a wetland mofette” *Biogeosciences* 12: 7169-7183. doi:10.5194/bg-12-7169-2015.
- Wilcox\*, K.R., J.C. von Fischer, J.M. Muscha, Mark K. Peterson and A.K. Knapp (2015) “Contrasting above- and belowground sensitivity of three Great Plains grasslands to altered rainfall regimes.” *Global Change Biology* 21(1):335-344. doi: 10.1111/gcb.12673
- Fest\*, B.K., S.J. Livesly, J.C. von Fischer and S.K. Arndt (2015) “Repeated fuel reduction burns have little long-term impact on soil greenhouse gas exchange in a dry sclerophyll eucalypt forests.” *Agricultural and Forest Meteorology* 201:17-25. doi:10.1016/j.agrformet.2014.11.006
- Augustine, David J., Paul Brewer\*, Dana M. Blumenthal, Justin D. Derner, and Joseph C. von Fischer. (2014) “Prescribed Fire, Soil Nitrogen Dynamics and Plant Responses in a Semiarid Grassland” *Journal of Arid Environments* 104:59-66
- Blunier, T., M.L. Bender, B. Barnett and J.C. von Fischer (2012) “Planetary fertility during the past 400ka based on the triple isotope composition of O<sub>2</sub> in trapped gases from the Vostok ice core.” *Climate of the Past* 8:1509-1526. doi:10.5194/cp-8-1509-2012
- Dijkstra, F.A, D.J. Augustine, P.E. Brewer and J.C. von Fischer (2012) “Nitrogen cycling and water pulses in semiarid grasslands: are microbial and plant processes temporally asynchronous?” *Oecologia* doi:10.1007/s00442-012-2336-6
- Dijkstra, F. A., J. A. Morgan, J. C. von Fischer, and R. F. Follett (2011), Elevated CO<sub>2</sub> and warming effects on CH<sub>4</sub> uptake in a semiarid grassland below optimum soil moisture, *J. Geophys. Res.*, 116, G01007, doi:10.1029/2010JG001288.
- von Fischer, J. C., R. C. Rhew, G. M. Ames\*, B. K. Fossdick†, and P. E. von Fischer (2010), Vegetation height and other controls of spatial variability in methane emissions from the

- Arctic coastal tundra at Barrow, Alaska, *Journal of Geophysical Research*, 115, G00I03, doi:10.1029/2009JG001283
- Ostrom, N.E., R. Sutka, P.H. Ostrom, A.S. Grandy, K.M. Huzinga, H. Gandhi, J.C. von Fischer and G.P. Robertson (2010) "Isotopologue data reveal bacterial denitrification as the primary source of N<sub>2</sub>O during a high flux event following cultivation of a native temperate grassland" *Soil Biology and Biochemistry* 42:499-506.
- Mazéas, O., J. C. von Fischer, and R. C. Rhew (2009), Impact of terrestrial carbon input on methane emissions from an Alaskan Arctic lake, *Geophysical Research Letters*, 36, L18501, doi:10.1029/2009GL039861.
- von Fischer, J. C., G. Butters, P. C. Duchateau, R. J. Thelwell\*, and R. Siller (2009), In situ measures of methanotroph activity in upland soils: A reaction-diffusion model and field observation of water stress, *Journal of Geophysical. Research*, 114, G01015, doi:10.1029/2008JG000731. *Figures featured on journal website.*
- Nordt, L., J. von Fischer, L.L. Tieszen and J. Tubbs. (2008). "Coherent changes in relative C<sub>4</sub> plant productivity and climate during the late Quaternary in the North American Great Plains." *Quaternary Science Reviews* 27(15-16): 1600-1611.
- von Fischer, J.C., L.L. Tieszen and D.S. Schimel (2008) "Climate controls on C<sub>3</sub> vs. C<sub>4</sub> productivity in North American grasslands from carbon isotope composition of soil organic matter." *Global Change Biology* 14(5): 1141-1155.
- von Fischer, J. C., and L. O. Hedin (2007) "Controls on soil methane fluxes: Tests of biophysical mechanisms using stable isotope tracers", *Global Biogeochemical Cycles*, 21, GB2007, doi:10.1029/2006GB002687.
- Nordt L., J.C. von Fischer and L.L. Tieszen (2007) "Late Quaternary temperature record from buried soils of the North American Great Plains." *Geology* 35:159-162.
- Suwa, M., J.C. von Fischer, M.L. Bender, A. Landais, and E.J. Brook (2006) "Chronology reconstruction for the disturbed bottom section of the GISP2 and the GRIP ice cores: Implications for Termination II in Greenland." *Journal of Geophysical Research*, 111, D02101, doi:10.1029/2005JD006032.
- von Fischer J.C. and L.O. Hedin (2002) "Separating methane production and consumption with a field-based isotope pool dilution technique." *Global Biogeochemical Cycles* 16(3) 8.1-8.12.
- Ostrom N.E., L.O. Hedin, J.C. von Fischer and G.P. Robertson. (2002) "Nitrogen transformations at a soil-stream interface: a stable isotope approach." *Ecological Applications* 12(4) 1027-1043.
- Cleveland C.C., A.R. Townsend, D.S. Schimel, H. Fisher, R.W. Howarth, L.O. Hedin, S.S. Perakis, E.F. Latty, J.C. von Fischer, A. Elseroad, M.F. Wasson (1999) "Global patterns of terrestrial biological nitrogen (N<sub>2</sub>) fixation in natural ecosystems." *Global Biogeochemical Cycles* 13:623-645.
- Hedin L.O., J.C. von Fischer, N.E. Ostrom, B.P. Kennedy, M.G. Brown, and G.P. Robertson (1998) "Thermodynamic constraints on nitrogen transformations and other biogeochemical processes at soil-stream interfaces." *Ecology* 79(2):684-703.
- von Fischer J.C. and L.L. Tieszen (1995) "Carbon isotope characterization of four tropical forests in Luquillo, Puerto Rico." *Biotropica* 27(2):138-148.

## ***Grants and Fellowships***

### Current awards

PI, "Interpretation of Street-Level Methane Concentrations" \$800,000 from The Environmental Defense Fund with 4 CSU co-PI's. 2012-2016.

PI, "Methane uptake by grassland soils: Biogeochemistry, microbial ecology and integrative modeling." \$1,200,000 from NSF DEB Ecosystems with 4 co-PI's. 2011-2015.

### Past awards

Partner Investigator (equivalent to co-PI), "Methane uptake of forest soils." AU\$270,000 from the Australian Research Council Discovery grant program to S. Arndt (PI) and S. Livesley, 2011 – 2015.

Co-PI, "Site-Specific Nitrous Oxide Isotope Analyzer for Measuring Bioremediation," \$108,194 subcontract for DOE Phase I SBIR grant with Los Gatos Research. 2013-2014.

Senior Personnel, Shortgrass Steppe Long Term Ecological Research Site. 2005 – 2014. \$940,000 per year from NSF DEB, with 15 co-investigators.

Co-PI, "Site-Specific Nitrous Oxide Isotope Analyzer for Measuring Bioremediation," \$40,000 subcontract for DOE Phase I SBIR grant with Los Gatos Research. 2012.

Partner-Investigator "International collaboration for Methane Biogeochemistry and Microbial Ecology" from University of Melbourne Research Office. \$14,576 with S. Arndt and S. Livesley (Univ. Melbourne). 2009

Visiting Research Fellowship, University of Melbourne, November 2008.

Co-PI, LTER program "Catalyzing cross-site comparisons of microbial diversity and function: A proposed LTER Workshop" with PI Tom Schmidt (Michigan State Univ.) and 4 others. \$9,000 from LTER Network Office. 2007.

Co-Leader, CSU Course Redesign Proposal for General Ecology (BIO320 and LAND220), with Indy Burke (CSU). \$20,000. 2007.

PI, "Additions of Physical and Biogeochemical Tracers to Wetland Soils Can Reveal Mechanisms Underlying the Productivity-Methane Emission Relationship." with co-PI's Dennis Ojima (Colorado State Univ.) and M. Todd Walter (Cornell Univ.). \$500,000 from NSF DEB Ecosystems. 2005 – 2009, plus 2 REU supplements.

Faculty Fellow Award, National Academies Education Program in the Life Sciences, for the 2004 National Academies Summer Institute in Biology.

USGS Contract, EROS Data Center. Technical support for Carbon in US and Africa Program to investigate controls of carbon isotope composition of soil organic matter in the US Great Plains. \$50,000. 2004 – 2005.

NOAA Post-Doctoral Fellowship, NOAA Climate and Global Change Program, for "How does the productivity of the biosphere respond to changes in climate? Global scale evidence from periods of rapid climate change as recorded in ice cores." \$84,750. 2001 – 2002.

NASA Graduate Fellowship in Earth System Science \$66,000 over 3 years. 1999 – 2001.

NSF RTG Graduate Fellowship, NSF Research Training Group in Biogeochemistry and Environmental Change, Cornell University. 1997 – 1999.

NSF RTG Graduate Fellowship, NSF Research Training Group in Ecology, Michigan State University at the W.K. Kellogg Biological Station. 1993.

### ***Service & Administration***

#### University: Notable invited, appointed & elected

Invited member, Building Committee for new Biology Department Building (\$73M), 2014 – 2017.

Invited member, Strategic Plan Area Review Committee, university-level funding recommendations for Faculty and Staff, AY 2014-15.

Invited Member, Executive Committee, CSU School of Global Environmental Sustainability, Fall 2012-2014.

Elected Member, Executive Committee, CSU Graduate Degree Program in Ecology, Fall 2011 – 2013.

Director, Colorado Laboratory for Environmental Mass Spectrometry, Colorado State University. 2004 – 2009.

#### University: other service

School of Global Environmental Sustainability, Scholar, since 2012.

Invited member, College of Natural Science Awards Committee, April 2013.

Search committee chair for faculty positions  
Science Education, Dept. of Biology, Fall 2014.

Search Committee Chair for Staff positions  
Academic Support Coordinator, Dept. of Biology, Spring 2012, Fall 2012, Fall 2014.  
Program Aide, Dept. of Biology

Invited Member, Shortgrass Steppe Research and Interpretive Center Users Committee. Spring 2011 – present.

Invited Participant, CSU Institute for the Built Environment LENSES (Living Environments in Natural Social & Economic Systems) workshop for “green building” materials. May 19, 2010.

Graduate Affairs Committee, Department of Biology, Colorado State University, 2007 – 2009, 2011 – 2013.

Co-organizer, NREL seminar series “Using stable isotopes to understand ecological processes and global change.” Included 13 speakers, Fall 2009.

Science Steering Committee, Shortgrass Steppe Long-Term Ecological Research Site, Colorado State University, January 2009 – present.

Judging graduate and undergraduate presentations: Front Range Student Ecology Symposium, CSU Celebrate Undergraduate Research and Creativity. Annually since 2004.

Co-Director and co-founder, Student Ecology Research Program. An enrichment program to improve the educational experience of undergraduate employee researchers through bi-weekly seminars and discussions. 2004 – 2010.

Member, Executive Steering Committee, Cornell Boyce Thompson Stable Isotope Lab, Cornell University 1998 – 2001.

#### University: Notable initiatives

Major renovations to first floor of Anatomy-Zoology building, making the space more attractive and useful for undergraduate students. Spring 2012. \$85,000 from CSU College of Natural Sciences.

#### Outside Service

Invited panelist, Google, April 2015

Special Session Convenor and chair, 14 presentations in the session “Processes and Mechanisms Controlling Soil Methane Oxidation” at the Annual Meeting of the American Geophysical Union, San Francisco, CA. with colleagues from the Univ. Melbourne, Australia: Benedikt Fest, Stefan Arndt and Philipp Nauer. December 2015.

Invited participant, Department of Energy ARPA-E (Advanced Research Projects Agency – Energy) Workshop on Natural Gas Methane. April 2013.

Invited Member, External Advisory Board for the NSF-funded Sevilleta Long Term Ecological Research project, University of New Mexico. 2013.

Associate Editor, Journal of Geophysical Research Biogeosciences, January 2010 – 2012.

Manuscript Reviews: *Annals of Botany*, *Biogeochemistry*, *Ecological Applications*, *Ecosystems*, *Global Change Biology*, *FEMS Microbiology Ecology*, *Geochimica et Cosmochimica Acta*, *Global Biogeochemical Cycles*, *ISME*, *Journal of Geophysical Research Biogeosciences*, *New Phytologist*, *Oecologia*, *PNAS*, *Soil Biology & Biochemistry*, *Teaching Issues & Experiments in Ecology*.

Review Panelist: NSF LTER Program, Washington D.C., April 2012

Review Panelist: DOE Terrestrial Ecology program, Washington D.C., January 2012.

Review Panelist: EPA STAR Graduate Fellowships, Washington D.C., March 2011.

Ad hoc Proposal Reviews: National Science Foundation, NASA, European Science Foundation, National Environment Research Council (UK).

Review Panelist, NASA Terrestrial Ecology Program, Washington, D.C., March 2009.

Invited Participant, National Ecological Observatory Network (NEON) Microbial Ecology planning meeting, Baton Rouge, LA. February 2008.

Invited Participant, National Center for Atmospheric Research, Junior Faculty Forum "Downscaling Climate Change: Extreme Events, Regional Impacts, and Ecosystems." Boulder, CO. 2005.

Invited Participant, North American Carbon Program special workshop on the global methane cycle, Durham, NH. 2002.

Member, Ecological Society of America (1998 – present).

Member, American Geophysical Union (1999 – present).

Member, European Geophysical Union (2013 – present).

### **Teaching**

Instructor for “Ecosystems Ecology” (ECOL 610, 3cr.) Colorado State University. Fall semesters 2010 to present.

Instructor for "Ecology" (Life 320, 3cr.), Colorado State University. Fall semesters from 2003 to 2009.

Co-Instructor for "Global Change Ecology, Impacts and Mitigation" (BZ/NR 380, 3cr.), Colorado State University. Spring semesters from 2008 to present.

Co-Instructor for “Biology of Organisms” (LIFE103, 3cr.), Colorado State University, Spring semester from 2009 to present.

Instructor for Special Topics in Ecology (ECOL 592, 1cr.) “Microbial ecology and biogeochemistry.” Spring 2010.

Instructor for Special Topics in Ecology (EY592, 1 cr.) “The struggle to unify human-scale and microbial ecology.” Spring 2004.

#### Teaching awards

Awarded “Excellence in Graduate Teaching and Mentoring” for teaching of ECOL 610 Ecosystem Ecology, CSU Dept. of Biology, Spring 2011.

Awarded “Distinguished Member” CSU National Society of Collegiate Scholars, 2009

Nominated for “Best Teacher Award” CSU Alumni Association, 2008.

Nominated “CSU Honors Professor” CSU Undergraduate Honors Program, 2005.

Course redesign: Development of active learning modules for CSU Ecology courses (BIO 320 and LAND/SOCR 220). With Indy Burke, trained teams of graduate students and faculty to design active learning modules for ecology. These 10 modules are now available and are being used in CSU Ecology courses. 2007-2008.

Guest lectures at Colorado State University: Numerous

### ***Advising & Supervision***

#### Post-doctoral associates

Akihiro Koyama, 2011 - 2015

Nels Johnson, 2011 - 2015

#### Graduate Advisor:

Stephanie Owens (M.S., Graduate Degree Program in Ecology), completed 2008

Craig Judd (M.S., Graduate Degree Program in Ecology), completed 2011

Paul Brewer (Ph.D., Graduate Degree Program in Ecology), current

Sam Dunn (Ph.D., Graduate Degree Program in Ecology), current

Charlotte Alster (Ph.D., Graduate Degree Program in Ecology), current

Emily Stuchiner ((Ph.D., Graduate Degree Program in Ecology), current

#### Graduate Committee, Colorado State University:

##### Completed

Douglas Van Hoewyk (M.S., Biology) completed 2006

Eliana Bontti (Ph.D., Graduate Degree Program in Ecology) completed 2008

Mark Gathany (Ph.D., Graduate Degree Program in Ecology) completed 2008

Jeff Dereume (M.S., Geosciences) completed 2010

Sarah Evans (Ph.D., Graduate Degree Program in Ecology) completed 2012

Parker Kraus (M.S., Atmospheric Sciences) completed 2012

Stormy Lindblom (Ph.D., Biology) completed 2012

Brooke Osborne (M.S., Graduate Degree Program in Ecology) completed 2012

Warren Newby (M.S., Geosciences), completed 2012  
Anna Waido (Ph.D., Education), completed 2013  
Caroline Melle (M.S., Graduate Degree Program in Ecology), completed 2013  
Damien Borcovsky (M.S., Geosciences), completed 2013  
Syed Shah (Ph.D., Graduate Degree Program in Ecology), completed 2013  
Andrew Horton (M.S., Graduate Degree Program in Ecology), completed 2013  
David Millar (Ph.D., Graduate Degree Program in Ecology), completed 2014  
David Hoover (Ph.D., Graduate Degree Program in Ecology), completed 2014  
Will Horner (M.S., Geoscience), completed 2015  
Catherine Compton (M.S., Geosciences), completed 2015  
Kevin Wilcox (Ph.D., Graduate Degree Program in Ecology), completed 2015  
Cameron Toloe (M.S., Computer Science), completed 2015

#### Current

Osman Hamden (Ph.D., Graduate Degree Program in Ecology)  
Jason Reynolds (Ph.D., Botany)  
Alyssa Cochran (Ph.D., Botany)  
David Markman (Ph.D., Graduate Degree Program in Ecology)  
Cheryl Bowker (Ph.D., Graduate Degree Program in Ecology)  
Steven Mantrell (M.S., Civil & Environmental Engineering)  
Kathryn Schuller (M.S., Geoscience)  
Judy Daniels (Ph.D., Soil & Crop Sciences)  
Daniel Kotter (Ph.D., Graduate Degree Program in Ecology)  
Alexandra Blevins (M.S., Bioagricultural Sciences & Pest Management)  
Johnson Charles Arulswamy (M.S., Computer Science)  
Dana Flett, (M.S., Graduate Degree Program in Ecology)

#### International Graduate Committees

Benedikt Fest, (Ph.D., Plant Biology) University of Melbourne, Australia. Completed 2013  
Saadat Malghani, (Ph.D., Biogeochemistry), Friedrich Schiller University, Jena, Germany. Completed 2014  
Martin Nowak, (Ph.D., Biogeochemistry), Friedrich Schiller University, Jena, Germany. Current.  
Tobias Jochum (Ph.D., Chemical Physics), Friedrich Schiller University, Jena, Germany. Current

## Undergraduate Honors Theses

Hannah Shadis (advisor) 2005  
 Natalie Akagi (committee member) 2006  
 Lilli Welch (committee member) 2007  
 Dyllon Martini (committee member) 2008  
 Elin Franzen (committee member) 2008  
 Stephen Meyer (advisor) 2009  
 Elizabeth Moses (advisor) 2011  
 Olivia Shoup (committee member) 2012  
 Jamie Bunker (advisor) 2013  
 Jenna Tustin (advisor) 2013

## Undergraduate Lab Researchers (n=30 since 2004)

Chris Anderson (2009), Liesel Brutlag<sup>†</sup> (2009), Jamie Bunker (2010-2011), Ariel Carmichael\* (2011- 2012), Mariah Coler<sup>†</sup> (2011), Sara Cummings\* (2005), Tanner Hill\* (2005 - 2009), Lisa Fernholz\* (2011- 2013), Nicholas Framsted (2015 - ), Claire Griebenow\* (2011- 2013), David Hoesly (2005-2006), Rachel Jorgensen (2011- 2012), Jeff Kimbrel\* (2004-2006), Paige Koutlas (2012 – 2014), Jason Lutz (2006), Elizabeth Mortensen\* (2008-2010), Darcy MacPhee (2005), Claire Ojima<sup>†</sup> (2004), Deanna Olson (2012 - 2014), Shreya Pokharel (2011 - 2013), Ashley Quick Bear (2012 - 2013), Evan Rosenlieb\* (2011 - 2013), Richard Siller\* (2005), Jacqueline Sitko (2011- 2014), Matthew Stout (2011), Kelsey Thompson (2011 - 2014), Lucas Thompson (2012- 2014), Mike Weltzer\* (2006), Sere Williams (2006), Breana Wolfe (2005).

\*went on to graduate school (n=10), <sup>†</sup>went on to professional school (n=3)

## Research technical staff

Anita Kear, 2004 – 2006  
 Evan Rosenlieb, 2011 – 2014  
 Jaqueline Sitko, 2013 – 2014  
 Claire Greibenow, 2013 – 2014  
 Adam Gaylord, 2014 – 2015.

***Invited Presentations*** (<sup>†</sup>*international*)

2015      “Methane uptake in Great Plains grassland soils: does microbial community composition matter for ecosystem function?” Graduate student invited seminar for University of Wyoming, Department of Botany.

- 2014\* "Methane oxidation in upland soils: a model system for synthesis in biogeochemistry and microbial ecology." Seminar for Department of Soil Ecology, University Freiburg, Germany.
- 2014\* "Isotopic studies of trace gas biogeochemistry" Seminar for Bio-Geo seminar, Institute for Geosciences, Friedrich Schiller University, Jena, Germany.
- 2013\* "When does knowledge of microbial community composition improve biogeochemical models?" Seminar for Department of Geology, Stockholm University, Sweden.
- 2013\* "Physical, biological and social controls of methane emissions: an overview of my interests & invitation to new collaborations." Colloquium seminar, Max Planck Institute for Biogeochemistry, Jena, Germany.
- 2013 "Mechanisms controlling terrestrial and aquatic methane release from the Arctic Coastal Tundra at Barrow, Alaska." Boston University Biogeochemistry Seminar Series, Boston, MA.
- 2012 "Interpretation of street-level methane concentrations." Robertson Scholar Program, Duke University.
- 2012 "When does knowledge of microbial community composition improve ecosystem models?" Biology Department seminar, University of Northern Colorado, Greeley.
- 2012 "Boil yourself alive in a test tube: using the scientific method to make career choices." CSU Greek Month of the Scholar academic achievement event.
- 2012 "When does knowledge of microbial community composition improve biogeochemical models?" Seminar for Max Planck Institute for Biogeochemistry, Jena, Germany.
- 2011 "Boil yourself alive in a test tube: using the scientific method to make career choices." CSU College of Natural Sciences Mentoring Program.
- 2011 "Climate Change: The Physical Scientific Basis" for the Hubert H. Humphrey International Fellows program, hosted by the CSU Office of International Programs.
- 2011 "Plant allometry outperforms biogeochemical predictors of methane emission from the Arctic Coastal Tundra at Barrow, Alaska." Dept. of Botany seminar, University of Wyoming.
- 2010 "Soil microbes that consume greenhouse gases: do they use spoons or forks?" Biology Department Seminar, Augustana College, Sioux Falls, SD.
- 2010 "When does knowledge of microbial community composition improve biogeochemical models?" Seminar for Program in Biogeochemistry and Environmental Biocomplexity, Cornell University, Ithaca, NY.
- 2010 "Mechanisms controlling terrestrial and aquatic methane release from the Arctic Coastal Tundra at Barrow, Alaska." Dept. of Geography colloquium, University of California, Berkeley, CA.
- 2009 "Mechanisms controlling terrestrial and aquatic methane release from the Arctic Coastal Tundra at Barrow, Alaska." Institute for Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO.
- 2008\* "Methane oxidation in upland soils: peeling away physics to see the ecology" University of Melbourne at Creswick, Creswick, NSW, Australia.

- 2008 "Methane oxidation in upland soils: putting the *bio* in biogeochemistry," Michigan State University, Kellogg Biological Station, Hickory Corners, MI.
- 2007 "Ecosystem-scale controls on methane emissions" NOAA Climate Monitoring & Diagnostics Laboratory, Boulder, CO.
- 2006 "Gas transport vs. methane production: What drives methane emission rates in *Typha* wetlands?" Special session on methane biogeochemistry. Annual Meeting of the American Geophysical Union.
- 2005 "Evidence and implications of habitat diversity for soil microbes from upland and wetland soils." Dept. of Geology, Baylor University, Waco, TX.
- 2005 "5 things that everyone should know about global climate change." Honors program, Colorado State University.
- 2005 "How much bio in biogeochemistry? Physical vs. biological controls of soil methane fluxes." Dept. of Earth System Sciences at the University of California, Irvine.
- 2004 "Linking microbial community properties to ecosystem function: methane consumption on the Shortgrass Steppe" Shortgrass Steppe LTER seminar series, Colorado State University.
- 2004 "Less than 1% of soil volume is anoxic, but it matters for upland ecosystem biogeochemistry." Dept. of Soil and Crop Sciences, Colorado State University.
- 2004 "Less than 1% of soil volume is anoxic, but it matters for upland ecosystem biogeochemistry." Institute for Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder.
- 2004 "Soil heterogeneity: Evidence and implications of anoxic microzones in oxic soils." Dept. of Soil Science, University of Wisconsin, Madison.
- 2003 "Diverse perspectives on climate change: soil anoxic microsites and glacial changes in global photosynthesis." Santa Fe Institute, Santa Fe, NM.
- 2002 "Microsites, Ecosystems and Global Change" Natural Resources Ecology Laboratory, Colorado State University.
- 2002\* "The triple isotopic composition of molecular oxygen reveals past rates of primary production." Biogeomon International Symposium on Ecosystem Behaviour, Reading, UK.

**Conference Presentations** *(not including secondary authorships)*

- 2015 von Fischer, J.C. and J. Ham. "Rapid Identification of Location and Magnitude of Urban Natural Gas Leaks" EPA 2015 International Emission Inventory Conference "Air Quality Challenges: Tackling the Changing Face of Emissions" San Diego, California - April 13 - 16, 2015
- 2015 von Fischer, J.C., A. Koyama, N.G. Johnson and C.T. Webb "A hierarchical examination of methane uptake: field patterns, lab physiology, community composition and biogeography" Poster presentation at the Annual Meeting of the American Geophysical Union, San Francisco, CA.
- 2013 von Fischer, Joseph Jessica Salo, Claire Griebenow, Linde Bischak, Daniel Cooley, Jay Ham, and Russ Schumacher. "Development of an algorithm to meaningfully interpret patterns in street-level methane concentrations" Solicited oral

- presentation at the annual meeting of the European Geophysical Union, Vienna Austria. April 2013
- 2012 Jorgensen, R.J., A. Koyama, J.C. von Fischer and M. Gupta. "Exploring potentials of a Los Gatos Research isotopic N<sub>2</sub>O analyzer capable of real time measurements." Poster presentation at the Annual Meeting of the American Geophysical Union, San Francisco, CA.
- 2010 von Fischer, J.C., A. Angert, D. Augustine, C. Brown, F. Dijkstra, J. Derner, R. Hufbauer, N. Fierer, D. Milchunas, J. Moore, H. Steltzer, M. Wallenstein. "Timescales of biogeochemical and organismal responses to individual precipitation events." Organized oral session at the Annual Meeting of the American Geophysical Union, San Francisco, CA.
- 2009 von Fischer, J.C. "Criteria to demonstrate that microbial community composition is important for biogeochemical function." Organized oral session at the Annual Meeting of the American Geophysical Union, San Francisco, CA.
- 2009 von Fischer, J.C., C.R. Judd and C.T. Webb "The intersection of methanotroph community ecology and methane biogeochemistry." Organized oral session at the Ecological Society of America, Albuquerque, NM.
- 2008 von Fischer, J.C. and R. Rhew "Methane emission rates from the Arctic coastal tundra at Barrow are log-normally distributed: Is this a tail that wags climate?" Oral presentation at the Annual Meeting of the American Geophysical Union, San Francisco, CA.
- 2007 von Fischer, J.C., G. Ames, R. Rhew and W.C. Oechel "Methane emission rates from the Arctic coastal tundra at Barrow: temporal and spatial variability and response to an experimental carbon addition." Poster presentation at the Annual Meeting of the American Geophysical Union, San Francisco, CA.
- 2006 von Fischer, J.C. and G. Butters "Physics or Biology? What controls variability in methane flux rates on the Shortgrass Steppe LTER site?" Poster presentation at the LTER All Scientists Meeting, Estes Park, CO.
- 2006 von Fischer, J.C. "Biology is more important than diffusion for regulating methane fluxes on the Shortgrass Steppe LTER." Oral presentation at the Annual Meeting of the Ecological Society of America.
- 2005 von Fischer, J.C., "Diffusion or biology? What drives variability in methane consumption of upland soils?" Poster presentation at the Annual Meeting of the American Geophysical Union, San Francisco, CA.
- 2004 von Fischer, J.C. and L.L. Tieszen "Soil Organic Matter  $\delta^{13}\text{C}$  across the Great Plains grasslands: both rainfall and temperature control C<sub>3</sub> vs. C<sub>4</sub> productivity. Oral presentation at the Annual Meeting of the American Geophysical Union, San Francisco, CA.
- 2004 von Fischer, J.C. and R.J. Thelwell "Rates and importance of methane production in oxic soils." Oral presentation at the Annual Meeting of the Ecological Society of America, Portland OR.
- 2004 von Fischer, J.C., M.L. Bender and T. Blunier "A record of global photosynthesis to 150ka derived from the triple isotopes of O<sub>2</sub> in polar ice cores." Oral presentation at the Annual Meeting of the American Geophysical Union, Montreal, Quebec, Canada.

- 2002 von Fischer, J.C., M.L. Bender and T. Blunier "Triple isotope composition of O<sub>2</sub> and the record of global O<sub>2</sub> production." Poster presentation at the Annual Meeting of the American Geophysical Union, San Francisco, CA.
- 2002 von Fischer, J.C., and L.O. Hedin "Do soil microbes drive methane flux?" Oral presentation at the Annual Meeting of the Ecological Society of America, Tucson, AZ.

### Technical Briefings

- 2015 von Fischer, J.C. "State of science on natural gas leak quantification." California Public Utility Commission, deliberation of SB1371. San Francisco, CA. 27 October 2015. Led to adoption of mobile methane mapping as a "best practice" for leak detection.  
<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M159/K670/159670815.PDF>

### Outreach

- 2013 Training workshop on Methane Leakage from the Natural Gas Supply Chain for the Duke University Robertson Scholar Program. Colorado State University, January 16-20. Co-hosted with Steve Hamburg, Chief Scientist, Environmental Defense Fund.
- 2011 Updated the Wikipedia entry on *Atmospheric Methane* and created a new entry for *Wetland Methane Emissions* with CSU undergraduate student Olivia Shoup, as part of her CO301 class on Technical Writing. Edits are as user "OSJVFCO301" on 27 February 2011.  
[http://en.wikipedia.org/wiki/Atmospheric\\_methane](http://en.wikipedia.org/wiki/Atmospheric_methane)  
[http://en.wikipedia.org/wiki/Wetland\\_Methane\\_Emissions](http://en.wikipedia.org/wiki/Wetland_Methane_Emissions)

### Popular press and other coverage

- 2014-16 Extensive popular press coverage for work with the Environmental Defense Fund to map natural gas leaks using Google Streetview cars.
- 2013 Quoted in article about mapping methane leakage from cities "Uprising" in *Matter*, February 2013. <https://www.readmatter.com/uprising-preview/>
- 2012 Quoted in article about the role of methane in rapid global warming. "Global Warming: Faster than Expected?" *Scientific American*, November 2012.
- 2010 Presentation at 2009 Annual Meeting of the Ecological Society of America received expanded coverage in a special report:  
 Yuko Hasegawa, John E. Hobbie (2010) Organized Oral Session 27.  
 Application of Molecular Knowledge of Microbes to Studies of Ecological Processes: Why the Integration is so Challenging. *Bulletin of the Ecological Society of America*: Vol. 91, No. 1, pp. 68-79. doi:10.1890/0012-9623-91.1.68
- 2010 Quoted in article about new instruments that allow scientists to more easily measure greenhouse gas emissions. "Greenhouse Gases: Who's Cheating?" in *Bloomberg Business Week*, 11 January 2010, p18-19.  
[http://www.businessweek.com/magazine/content/10\\_02/b4162018066076.htm?c\\_han=magazine+channel\\_new+business](http://www.businessweek.com/magazine/content/10_02/b4162018066076.htm?c_han=magazine+channel_new+business)
- 2009 Research photographs and discussions with artist John Kelly included in his book Flood Cycle: Notes from a Changing Planet. Signal Books, Oxford, U.K. 2009

- 2009      Figures from von Fischer et al. (2009) featured in “Image Highlights” section on the website of *Journal of Geophysical Research Biogeosciences*.
- 2009      Mentioned in article “Ice Capades” *Outside Magazine*, January 2009 issue.  
<http://outside.away.com/outside/destinations/200901/arctic-ocean-global-warming-4.html>
- 2008      Interview with Monika Seynsche on Deutschlandradio (German Public Radio) February 13 discussing research on methane emissions from the Arctic.  
<http://www.dradio.de/dlf/sendungen/forschak/738992/>